Flightfax

ARMY AVIATION RISK-MANAGEMENT INFORMATION

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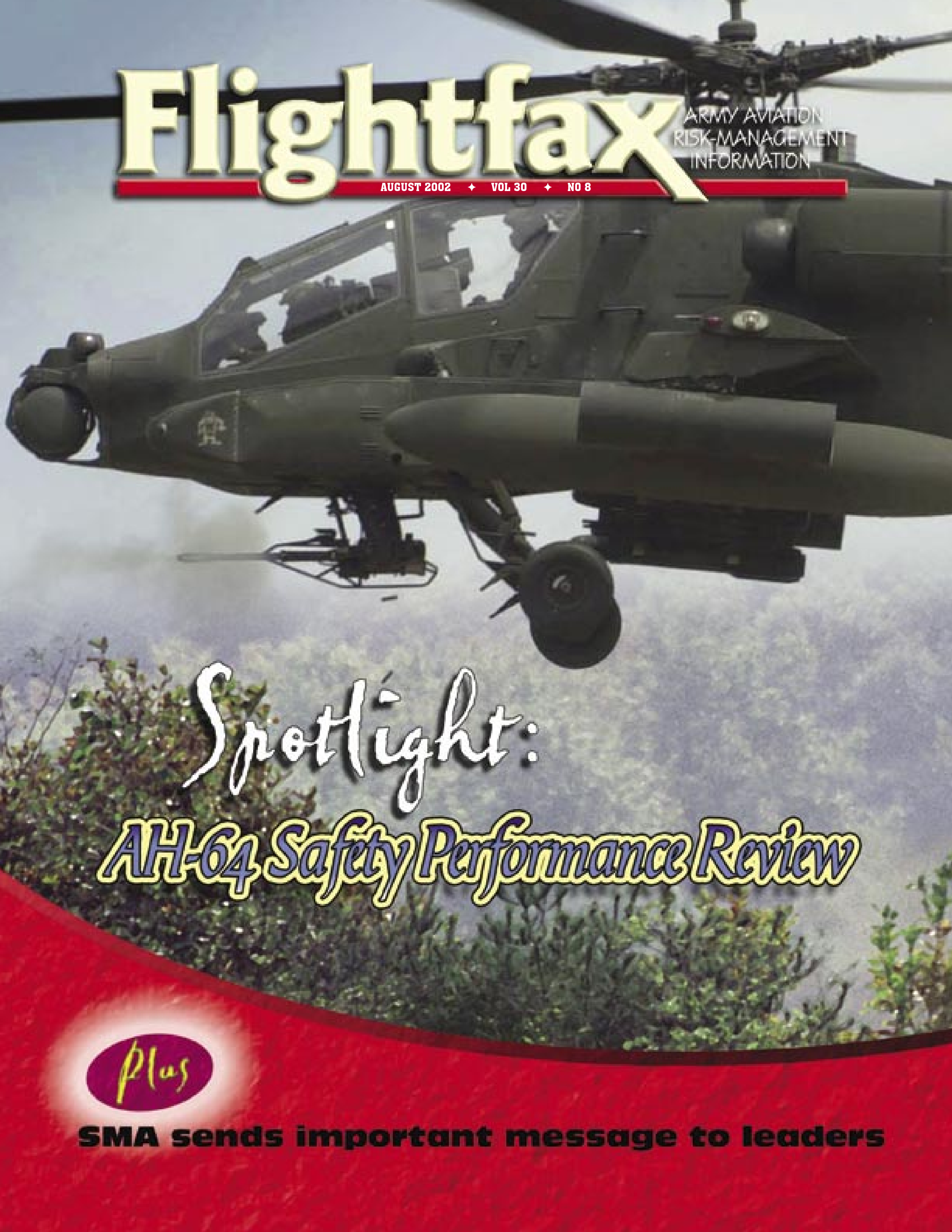

Spotlight: AH-64 Safety Performance Review

Plus

SMA sends important message to leaders

Flightfax
ARMY AVIATION RISK-MANAGEMENT INFORMATION

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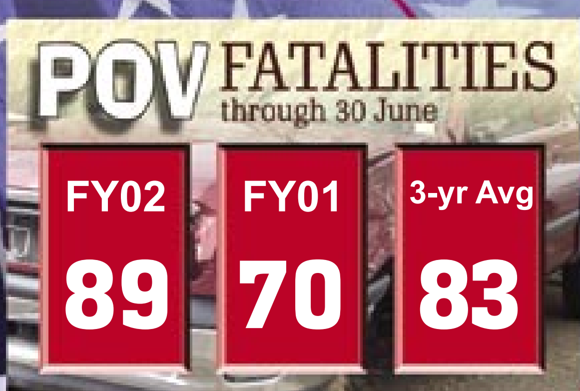

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James E. Simmons
Brigadier General, US Army
Commanding

DASAF's CORNER

from the Director of Army Safety

Recognizing Outstanding Soldiers and Civilians Is Important

I have used this forum many times to share my personal philosophy with you: **Units that participate in tough, realistic training—with technically and tactically proficient leaders present—have significantly fewer accidents.** Those technically and tactically proficient leaders across our Army are doing a great job in integrating risk management to help us ensure that we have combat-ready battalions capable of going out and conducting tough, realistic training without hurting or killing soldiers before crossing the line of departure.

You have practiced risk management every day, during every training mission. Now that we have deployed into actual combat conditions, risk management is an integral part of how each of you think and maneuver your way through situations as battlefield conditions change instantaneously.

You have repeatedly proven that risk management works and carries forward into combat. Our fellow soldiers continue to hold the torch high and execute real-world missions around the globe, fighting and winning this war on terrorism.

It is time to recognize our units and our outstanding soldiers and civilians who integrate risk management and safety into our tactical operations and garrison support missions. Their perseverance in identifying, assessing, and controlling hazards saves countless injuries and fatalities and prevents costly damage to our equipment.

Two shining examples come immediately to mind: the 101st Airborne Division, Air Assault, and Tobyhanna Army Depot. Thanks to the care and guidance of some dynamic leaders and NCOs, the 101st Airborne Division, Air Assault, has deployed 1,411 soldiers during Operation Enduring Freedom and brought them all home—alive!

Over the last 9 years, Tobyhanna Army Depot, where overhaul and repair of essential warfighting equipment takes place, reduced the amount of Department of Labor compensation chargeback costs by $8 million to cover civilian injury claims. Additionally, with great support by the chain of command and our civilian and military workforce, Tobyhanna Army Depot achieved Star Site status as a member of the Occupational Safety and Health Administration's Voluntary Protection Program.

The Chief of Staff and I would like to recognize your units, soldiers, and civilians—both at home and deployed abroad—for their efforts to incorporate risk management into plans and operations, and thus significantly enhance readiness by reducing accidental losses. We all know the loss of any soldier or damage to any piece of Army equipment seriously impacts our readiness and ultimately our ability to fight and win this war. For those units and individuals who excel in preventing this from happening, we owe them recognition for a job well done.

Review the criteria found in Army Regulation 672-74: *Army Accident Prevention Awards Program* and nominate your units and individuals for either of the two Chief of Staff Safety Awards or any of the four Director of Army Safety awards. Make time to do the small amount of paperwork necessary to ensure our great soldiers and civilians get the long-overdue recognition they have earned and deserve.

Train hard and play hard—but be safe!

JAMES E. SIMMONS

Spotlight: AH-64 Safety Performance Review

Note: This review covers fiscal years 1998 through 2002 (as of 12 Aug 2002)

Since FY 1998, there have been 96 AH-64 Class A through C accidents. These accidents cost the Army $235,931,196 and resulted in eight fatalities and four serious injuries (the most recent accidents are still being investigated and will be covered in later articles). Highlights of the accidents follow.

Flying in close proximity to obstacles

There were 10 accidents involving a tree strike during flight. Six occurred at night and four during the day. The majority of these occurred during terrain flight. In three of these accidents, the crew was landing the aircraft. A hazard associated with this aircraft is the loss of visual cues due to aircraft landing attitude; i.e., nose-high attitude, particularly for the backseater. When the aircraft nose is pulled up, the crew loses sight of the intended touchdown point.

Controls to help mitigate this hazard include having the frontseater clear the aircraft, or having the frontseater fly the approach, and using available aircraft systems to enhance visibility; e.g., the helmet display unit [HDU], using the monocle during the day. Also, there are flight techniques that will allow the backseater to see the touchdown point. Manually driving the stabilator down will drive the nose down. Kicking the aircraft slightly out

of trim, just enough to see the landing point, is another technique.

Scenario 1

During a night (0% illumination) training mission, the AH-64A crew, using the night vision system (NVS), was flying at 100 KIAS and 70 feet above ground level (AGL), when the aircraft struck several tall pine trees. The aircraft descended through the trees to the ground. The aircraft was destroyed, and both crewmembers received major injuries.

Scenario 2

During the conduct of NVS training for annual proficiency and readiness test (APART) requirements, a tree strike occurred at 60 feet AGL as the aircraft descended vertically from an 80-foot out-of-ground effect (OGE) hover for landing in a large confined area. The descent continued to impact with numerous additional blade strikes. The aircraft was destroyed and the two crewmembers received minor injuries.

Inadvertent hover drift

Five accidents involved the hazard of inadvertent hover drift during high cockpit workload conditions, in all cases battle position operations. In two of these accidents, the instructor pilot (IP) was instructing the pilot (PI) in target acquisition procedures, which further escalated the workload.

Conditions contributing to this hazard were darkness, which limits peripheral cues, and a breakdown in crew coordination. The aircraft either descended or drifted rearward into trees or the ground. These accidents involved the AH-64A model, which is not equipped with altitude and position hold modes (as is the Longbow).

Avoiding inadvertent drift during stationary hovering operations requires positive coordination between the crew and use of onboard systems to assist in drift detection. Use of the monocle during the day will help provide drift information. If possible, allow adequate room to safely accommodate for drift.

Scenario

While at a sustained OGE hover in steep, sloping mountainous valley terrain at night, the aircraft inadvertently drifted to the rear and made contact with trees on a steep slope, causing damage to the aircraft. Both crewmembers were focused inside the cockpit, the PI on a target engagement sequence and the IP on instruction.

In-flight part/component detachment

There were 10 accidents where an aircraft component or part came loose from the aircraft during flight. Seven of the ten incidents (70%) resulted in foreign object damage (FOD). There were three possible causes for this: materiel failure of the component: 5 (50%); improper maintenance, which induced a materiel failure of the component: 3 (30%); or inadequate pre-flight/through-flight inspection by the aircrew: 2 (20%). In the latter case, pilots failed to detect unsecured panel doors (engine cowling door) prior to flight.

Bird strikes

There were eight bird strikes. Six of these occurred in cruise flight, one during NOE flight, and one during descent for approach.

Wire strikes

There were six wire strikes. These accidents were evenly split between day and night. Five of the six (83%) occurred during multiship operations (four were in formation flight at the time). In two cases, the aircrew failed to update their hazards map with available hazard information. In another two cases, the aircrew descended below an established “hard deck” (minimum descent altitude). In four of the cases (67%), the aircrew was flying multiship in the center of a valley or directly across a river.

A control to prevent wire strikes in this type of environment is the “Right Hand Rule,” which prescribes that, unless tactical considerations dictate otherwise, helicopters are to fly on the right hand side of routes, valleys, and any other line features.

Wires are difficult to see with AH-64

NVDs and forward-looking infrared (FLIR). Equipping copilot-gunners (CPGs) with ANVIS-6 NVGs during the en route phase of missions would enhance detection of wires and other hazards during darkness, particularly in combat situations where hazard reconnaissance may not be possible.

Scenario

The mission was a day local-area orientation flight. The pilot of the lead aircraft reversed course due to poor weather. He established a course in the center of a narrow valley, flying approximately 210 feet AGL and 80 KIAS directly into the sun.

The aircraft then struck two 5/8-inch power lines that crossed the valley floor along the flight path. The wire strike caused extensive damage to three main and all tail rotor blades, and severed the air data subsystem (ADS). The crew successfully landed the aircraft without further damage or injury.

Power management

There were two accidents (both Class A's), which involved improper power management. Both occurred while the crew was attempting to establish and maintain an OGE hover at high gross-weight, high altitude conditions. Power demand exceeded power available and the aircraft descended in a settling-with-power condition to ground impact. These accidents demonstrate a lack of understanding for operating in high gross-weight, high altitude conditions.

Scenario

The night accident initiated as the PC in the rear seat, using his PNVS, attempted to establish and maintain a 170-feet OGE hover for an overwatch position. The PC did not anticipate the power needed to establish and maintain the OGE hover at the high gross weight, high altitude, downwind, hover conditions using a significant 30-degree deceleration. The aircraft descended in a settling-with-power condition to ground impact. The aircraft was destroyed and the PC received minor injuries. The crew had been operating with lower gross weights and at lower altitudes prior to deployment.

Simulated engine failure

There were five Class C accidents in which the pilot, performing a simulated engine failure (SEF), failed to maintain torque within single engine limits. Three of these accidents involved pilot trainees in Apache transition; however, in the other two cases, a pilot undergoing unit proficiency training relied exclusively on engine torque information provided by the HDU. The HDU torque display will only provide a maximum indication of 120%. Therefore, when operating at or near this value, torque must be referenced from both the HDU and the aircraft torque gauge to prevent an inadvertent over torque of the aircraft.

Scenario

While executing ATM task 1054 (perform simulated engine failure, OGE hover), the frontseat PI failed to maintain torque within single engine limits. He attempted to attain 122% torque while using his HDU as a sole reference for torque; however, an over torque of 135% occurred for one second on the #2 engine.

Materiel failures

Twenty-nine percent (28) of the Apache accidents were caused by definite or suspected materiel failure. Of note, a quarter (7) involved Power Takeoff (PTO) clutch assembly failures, which resulted in collateral aircraft damage and/or in-flight fires. There is no way for the crew or maintenance personnel to diagnose an impending failure. The first indications to the crew of a clutch assembly failure may be vibration and/or a grinding noise. Engineering investigation is ongoing to determine corrective action. In the interim, a Safety-of-Flight message (AH-64-02-08) was disseminated specifying inspection procedures for the PTO clutch assembly. ■

—Charisse Lyle, Operations Research and Systems Analysis Division, DSN 558-2091 (334-255-2091), charisse.lyle@safetycenter.army.mil

Tactical Risk Management

In practice, Army Aviation has looked at risk management as the assessment of risks associated with accident producing hazards. This mindset is demonstrated in our risk assessment worksheets. We fill out the worksheet, arrive at a numerical value, seek the appropriate level of mission approval and off we go. Don't take me wrong, the risk assessment worksheet is a valuable tool to organize information required to make accident risk decisions, but it doesn't consider tactical risks and then only takes you through the first two steps of a five-step process.

Standard operating procedures (SOP), operations orders, and leader experience cover the third step; executing the plan with discipline implements the controls; and tough, thorough after-action reviews complete the fifth step. The risk management application process is not complete until the lessons learned are applied and new hazards identified are reintegrated into the process at step one.

The often unconscious portion of risk management is the mitigation of tactical risk. The mitigation of tactical risk is generally not viewed as risk management, but as the development of a sound tactical plan. A tactical plan is not developed in a vacuum by the commander and S3; it's an integrated process that involves the entire staff. Without the application of a defined process, success will often be based on the experience of the leaders involved, skill of execution and chance. Leaders who are comfortable with risk management principals consciously apply them to the military decision-making model. This conscious use of risk management principals in the planning process establishes a common base of hazard assessment for both tactical and accident risks.

Although we take advantage of the synergistic effect of weapons systems on the battlefield, how often do we consider the synergistic effect of accident and tactical risk? Do medium accident risk and medium tactical risk result in a high-risk mission? This question cannot be answered without a common method of identifying, assessing and controlling hazards.

Combining the mitigation of accident and tactical risk requires close coordination between the safety and operations sections of the staff. Safety personnel must be tactically sound and operations personnel must be able to apply risk management principals; only when both are competent in the safety and operational disciplines will an organization be able to identify the synergistic effects of tactical and accident hazards. ■

—CW5 Larry R. Kulsrud, Aviation Division & Accident Investigation Division, DSN 558-2534 (334-255-2534), larry.kulsrud@safetycenter.army.mil

Why Crew Mission Briefs Are Essential

Crew mission briefs are an essential part of pre-mission planning because of their role in the development of good crew coordination, allowance for continued risk analysis, and instrumental in building strong working teams.

Have you heard the brief that assumes all crewmembers are aware of their areas of responsibility? Regardless of your experience, you probably have. The following is an example of that brief: "We're running short on time, so listen up. Our mission is to pick up some passengers at point A and move them to point B. The weather looks good and we've all flown with each other before. Got any questions? Good, let's go." This brief obviously does not give the crew enough information to operate a good mission or offer alternative methods for a mission if faced with situational conflicts.

Crew mission briefs develop good crew coordination by assigning duties and responsibilities to each participant prior to the flight. It is important to know if each crewmember is familiar with putting the transponder to emergency or how to perform an emergency shutdown of the engines. These seem like simple tasks, yet I have observed crewmembers having difficulty manipulating engine-power control levers or forgetting that the transponder has an emergency position.

Assigning duties for different situations that may occur is another good crew coordination technique. Of course, we cannot foresee every circumstance; but as a team, we can cover most situations that seem more likely to exist. An example would be during marginal weather, it is important to cover specific airspeeds and climb rates if inadvertent IMC is encountered. The pilot not on the controls would know just by looking at the instruments if the pilot on the controls has truly transferred to instruments or is having difficulty with spatial disorientation.

Another approach could be to brief whoever is not on the controls during slow airspeed flight. It is important to place his or her hand on the jettison switch until single engine airspeed is attained during external load/store operations. It is a proven fact that a crew that works as a team has a higher survival rate than one that doesn't. The lack of a good crew brief before and during an in-flight emergency situation could mean your life. Are you willing to bet your life for a few extra minutes of your time?

Crew mission briefs also provide the crew time to focus on the mission and continue risk assessments. The crew brief can give the crew an opportunity to voice concerns about the mission. The outcome of these concerns may provide insight to potential risk factors that were overlooked during the mission-planning phase. With the understanding of our current operation tempo (OPTEMPO), one person can't see all the potential risks involved when he or she is tasked with numerous responsibilities prior to flight. To avoid these risks, the crew brief should focus on risk considerations. Perhaps your crew chief observes a potential hazard that you missed and recommends a safer way to complete the mission.

It is a proven fact that a crew that works as a team has a higher survival rate than one that doesn't.

If you are the Pilot in Command, ensure the work environment is one that allows feedback. As a leader, focus on getting your crew beyond just checking the risk assessment block. Risk assessment is an ongoing process that requires leader emphasis.

Finally, the crew mission brief is a tool in building a strong working team within the aircraft. A typical crew mix has a wide variety of experience from as low as zero flight hours to a master aviator with multiple aircraft qualifications and thousands of hours. The only way to mate the duties with the proper experienced crewmember is to assign specific duties and responsibilities to each member.

It is important to take a moment and discuss mission specifics. Examples include scanning sectors, clearing the tail verses the nose or cockpit, or set up for the type of mission (VFR or IFR). Are you flying goggles or night systems? What procedures need to occur during in-flight emergencies for the person on the controls or the person not on the controls? What about specific duties for the crew chief during an in-flight emergency?

Crew mission briefs convey a significant amount of information and the individual presenter must tailor each presentation. As a crew mission briefer, it is important to ensure that your presentation techniques build crew coordination, allow feedback for continued risk analysis, and build your crew into a strong working team. These factors are mandatory for a successful flight. You may not see the results of a good crew brief; however, the Safety Center has many records of poor crew briefs. Don't be a statistic; take the time and brief your crewmembers right. ■

—CW2 David L. Pearson attended the Aviation Safety Officer Course, ASOC 02-004, and is currently stationed with F Company, 1-212th Avn, Fort Rucker, AL, as an SP; david.l.pearson@us.army.mil

The Care and Feeding of the CEP

The Communications Earplug (CEP) augments Army flight helmets by dramatically improving communication while simultaneously reducing noise exposure in rotary-wing aircraft. It consists of miniature transducers closely coupled with an expandable-foam earplug (Figure 1) that connects to the helmet communication system by an interface cable between earphone in the right earcup and the helmet shell (HGU-56/P and SPH-4B) or a connector attached to the communications cable (IHADSS).

The CEP has undergone extensive qualification testing as well as objective laboratory study and product evaluation by hundreds of U.S. Army aviators. Airworthiness Releases (AWR) have been issued for the use of the CEP in all Army rotary-wing aircraft and a National Stock Number (NSN) has been assigned (5965-01-474-5654). The CEP has proved to be a resounding success and enjoys nearly universal acceptance by U.S. Army rotary-wing aircraft crewmembers. The purpose of this article is to remind CEP users of the proper care and use of the foam ear tips used with the CEP. (Some of these instructions differ from those provided by the manufacturer of the foam ear tips.)

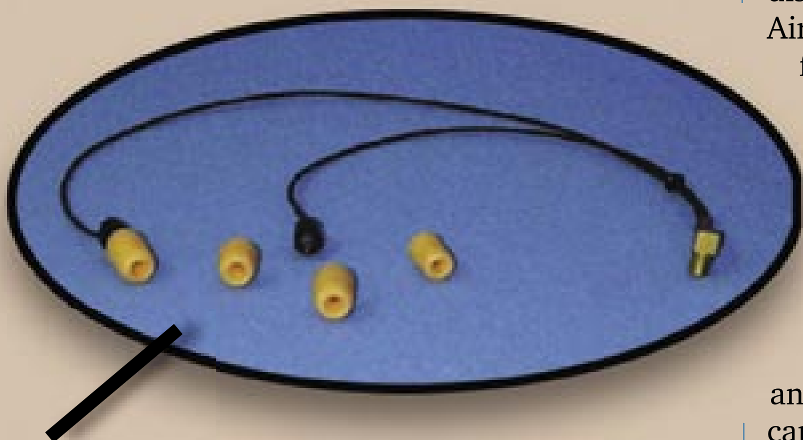


Figure 1. The Communications Earplug and three sizes of Comply™ ear tips.

Sizing

The Comply™ Canal Tips (0 vent), manufactured by Hearing Components, Inc.[1] were initially designed to prevent hearing aid feedback, but have been found to function effectively as hearing protectors, having a Noise Reduction Rating (NRR) equivalent to the well-known yellow expandable-foam earplug (NRR = 29 dB). They are available in three sizes: Standard, Slim, and Short, one of which will fit most Army aviators.

Approximately 80-90% of Army aircrew should be using the Standard size, with the remaining using the Slim size. We strongly discourage the use of the Short canal tips. Aircrew should be sure to use only correctly fitting canal tips. We caution that some ALSE shops may issue the wrong size plugs due to packaging or supply problems.

Cleaning

While the packaging instructions state "Do not wash canal tips," our experience is that the canal tips, when soiled, can be washed *sparingly* with mild soap and water and allowed to air dry. Some aviators wash the canal tips by leaving them in the pocket of their flight suits during laundering, and while this is not advised, we have received no reports of problems with this practice. (Some users report that the tips may not expand quite as well following repeated laundering.)

When cleaned properly and carefully, the foam tips should last for about one month (three or four washings) under normal use. The tip should be discarded if the foam appears to be degraded in any way, if it becomes separated from the plastic insert inside of the foam, or if it fails to expand properly after insertion.

Fitting

The fitting instructions on the package insert are NOT appropriate for use of the Comply™

[1] Hearing Components, Inc., 420 Hayward Avenue North, Oakdale, MN 55128, 800-872-8986 (voice), 651-735-2790 (FAX), http://www.hearingcomponents.com/

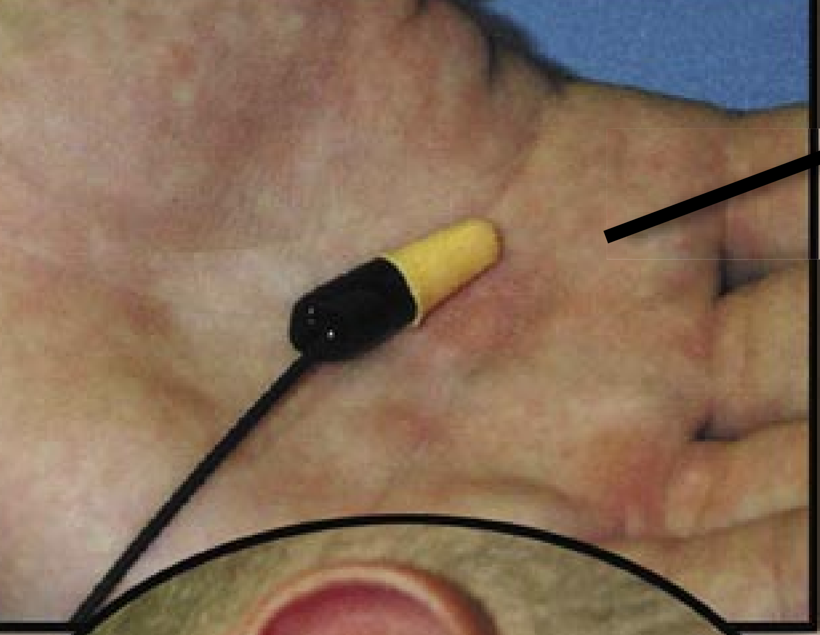


Figure 2. Comply™ Canal Tip correctly compressed prior to insertion into the ear canal.

Figure 3. Correctly inserted CEP. Note that little foam from the canal tip is visible and that the wire is directed downward through the notch in the external ear.

Canal Tip for hearing protection. Rather than flattening the canal tip "like a key" (as is indicated in the packaging instructions) to obtain the proper hearing protection, the CEP canal tip should be *rolled* between the thumb and first two fingers into a small cylinder (see Figure 2). When inserting the rolled foam tip into the ear canal, it is best to use the opposite hand to pull the external ear up and away from the head, thereby straightening the ear canal and allowing for a clear path for the rolled canal tip.

The CEP foam tip should first be threaded onto the transducer and then be inserted deeply into the ear canal such that the foam material is nearly entirely in the ear canal. The noise protection provided by the CEP will be reduced if it is not inserted correctly. In addition, the CEP should be inserted so that the black wire exiting each transducer should exit the "notch" in the external ear (Figure 3).

If care is not taken to compress the foam tip sufficiently, or if the ear canal is not straightened, it is possible that the foam may pull away from the plastic insert in the ear canal and touch or rub against the sensitive tissue in the external ear canal, resulting in significant discomfort. It has been our experience that much of the discomfort resulting from CEP use is from improper insertion of the device into the ear canal. A few seconds of care can make for an extended pain-free flight.

When the foam tip is threaded on to the CEP transducer, care should be taken to tighten the tip snugly onto the transducer. The tip typically will require one full turn to come in contact with the black transducer cover. An additional quarter-turn will seat the base of the plastic insert into the recessed lip of the transducer, providing a tight seal between the transducer and foam tip. If the foam tip remains in the ear canal after pulling on the transducer housing, the tip may not have been screwed on to the threaded adapter. (If the tip remains in the ear canal, it may have to be removed by forceps or similar instrument.) If the canal tip does not require a full turn to be fully attached to the CEP transducer, then return the CEP to your ALSE shop for replacement.

The CEP has proved to be a great success in Army rotary-wing aviation but, as for any other piece of equipment, its performance is dependent on proper use. We recommend that you review the documentation provided with your CEP each time your flight helmet is inspected by your ALSE technician. Proper use of the CEP will protect your hearing as well as greatly improve communications, thereby making flight safer for all Army aircrew. ■

—William A. Ahroon, Ph.D., Research Psychologist, Aircrew Protection Division, U.S. Army Aeromedical Research Laboratory, william.ahroon@se.amedd.army.mil, DSN 558-6828, CML 334-255-6828, http://www.usaarl.army.mil/; Ben T. Mozo, Communications and Ear Protection, Inc., bmozo@cep-usa.com, CML 334-347-1688, http://www.cep-usa.com

The Use of the CEP in the UH-60 Black Hawk

An article appeared recently in the May 2002 *Flightfax* that questions the use of the Communications Ear Plug (CEP) in the UH-60 Black Hawk. The author identified a possible safety problem that may occur in any Army aircraft, but that problem is not caused by the CEP, but rather by improper procedures employed by the pilot in command (PC).

Successful crew communication is important for safe and effective aircraft operations. Communication difficulties can occur from many factors between or among the communicators including impaired hearing. Difficulties communicating may exist whenever crewmembers have different hearing capabilities unless care is taken during pre-flight checks that each crewmember's communication system is set properly.

Consider, for example, a TH-67 with a single communications system volume control, an instructor pilot (IP) with an H-3 hearing profile, and a new flight student without any hearing loss. In this example, either the IP will not be able to hear because the communications system volume is set too low to accommodate the flight student or the flight student will be forced to communicate in a system with the volume set too high consequently distorting the communications signal.

The Black Hawk helicopter has two adjustments for the communications system. Each crewmember has a volume control for his intercommunication system (ICS), and there is an overall gain control on the radios. There is a risk that some crewmembers will have difficulty hearing the radios if the PC sets his ICS level to full volume and then adjusts the radios at an appropriate level for him. The proper procedure is to reduce the ICS level at the PC's location and increase the overall radio gain (to accommodate the PC's hearing). This would permit other crewmembers to adjust their ICS levels for effective communications.

The previous *Flightfax* article suggests that the CEP should not be used by any of the crewmembers unless all crewmembers are wearing the CEP. While the author has identified a problem associated with the use of the CEP, the solution is not to remove this safety technology from the aircraft, but for the aircraft crew to work together to deal with the difference in hearing capabilities—just as would have to be done when crewmembers suffer differing amounts of noise-induced hearing loss. The problem is not in the equipment, but rather in the procedures followed by those employing the equipment. ■

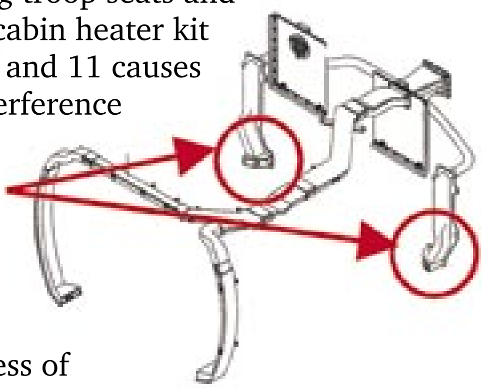
The problem is not in the equipment, but rather in the procedures followed by those employing the equipment.

—COL Brian S. Campbell, Commander, U.S. Army Aeromedical Research Laboratory, DSN 558-6917, CML 334-255-6917, brian.campbell@amedd.army.mil, http://www.usaarl.army.mil

Auxiliary Cabin Heater Duct Interference with Troop Seats

A potential hazard has been identified that precludes the installation of the two aft outboard forward-facing troop seats when the auxiliary cabin heater duct system is installed. The auxiliary cabin heater kit (P/N 70073-95004-011) is an approved aircraft modification kit designed for use on MEDEVAC aircraft, but has been installed on non-MEDEVAC aircraft.

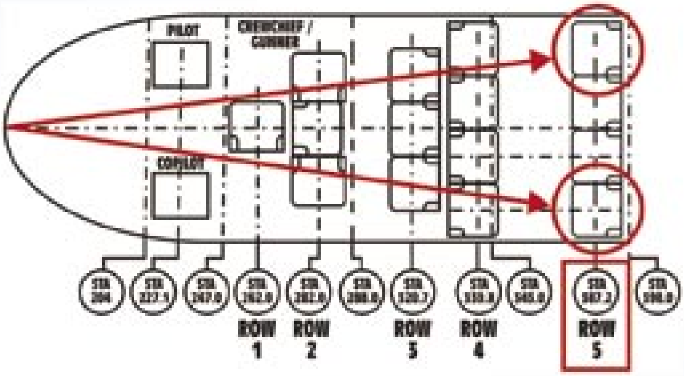
Concurrent installation of the aft outboard forward-facing troop seats and the auxiliary cabin heater kit ducts Nos. 10 and 11 causes a physical interference between the seats and the ducts. This interferes with the crashworthiness of the seats by limiting the seat attenuation in the event of a hard landing or crash.



UH-60-MIM-01-001 (070907Z Nov 00), Subject: Additional Warning for Heater Duct Installation and Aft Outboard, Forward-Facing Troop Seat added a warning to the TM 1-1520-237-23, para 2-4-46.12.3.

Care should be taken to ensure that if you have the auxiliary cabin heater duct system installed, that the outboard troop seats in row 5 are removed. Failure to do so places occupants of those seats at elevated risk of injury in the event of seat stroking following a hard landing.

—Greg McCann (SAIC), Utility Helicopters PM Safety, 256-971-7253, gregory.mccann@uh.redstone.army.mil



WARNING

Crashworthiness of the aft outboard, forward-facing troop seats will be decreased if the auxiliary cabin heater duct installations at station 398 are present. The duct and diffuser installation near the floor protrudes beneath the troop seat allowing the seat to strike the diffuser and stroke envelope, potentially decreasing the energy attenuation provided by seat stroke action. **DO NOT INSTALL AFT OUTBOARD, FORWARD-FACING TROOP SEATS IF HEATER DUCTS ARE INSTALLED ON THE BULKHEAD AT STATION 398.**

WAR Stories

Risk management lessons learned

Timely Help From a Friend

Some years ago, and long before the Army's crew coordination efforts began in earnest, I was taught an important lesson about cross-monitoring other aircrew members.

I was a fresh WO1 flying OH-58s in Germany. As with most of my missions, I was single-pilot this day and tasked to carry a Corps of Engineer Major from base to base on a facility inspection tour. The Major and I had flown together many times before, and had developed an easy friendship. He was a private pilot back in the States, and routinely helped me in the cockpit with navigation and radio duties. This was our last leg of the day, and we were going back to home base.

With the flight plan filed and weather brief updated, we cranked the aircraft under a broken to overcast sky and called for hover-taxi clearance. The tower cleared us to hover and repeated the previously issued advisory for thunderstorms to the west. With a quick, "Roger," I pulled pitch and headed for the departure pad. On intercom, the Major and I discussed the darkening western sky and the visible rain showers beneath. We agreed they appeared to be isolated enough for us to remain VMC as we followed our westerly course home.

We were cleared for takeoff to the east with a right downwind departure. As I departed traffic to the west and as the Tower radioed, "Frequency change approved," the aircraft was engulfed from above in a heavy downpour. I was instantly IMC and disoriented! I felt like I was in a dream-like state, unable to make sense of the instruments in front of me or respond to the seemingly far-off radio calls from Tower asking if we were okay.

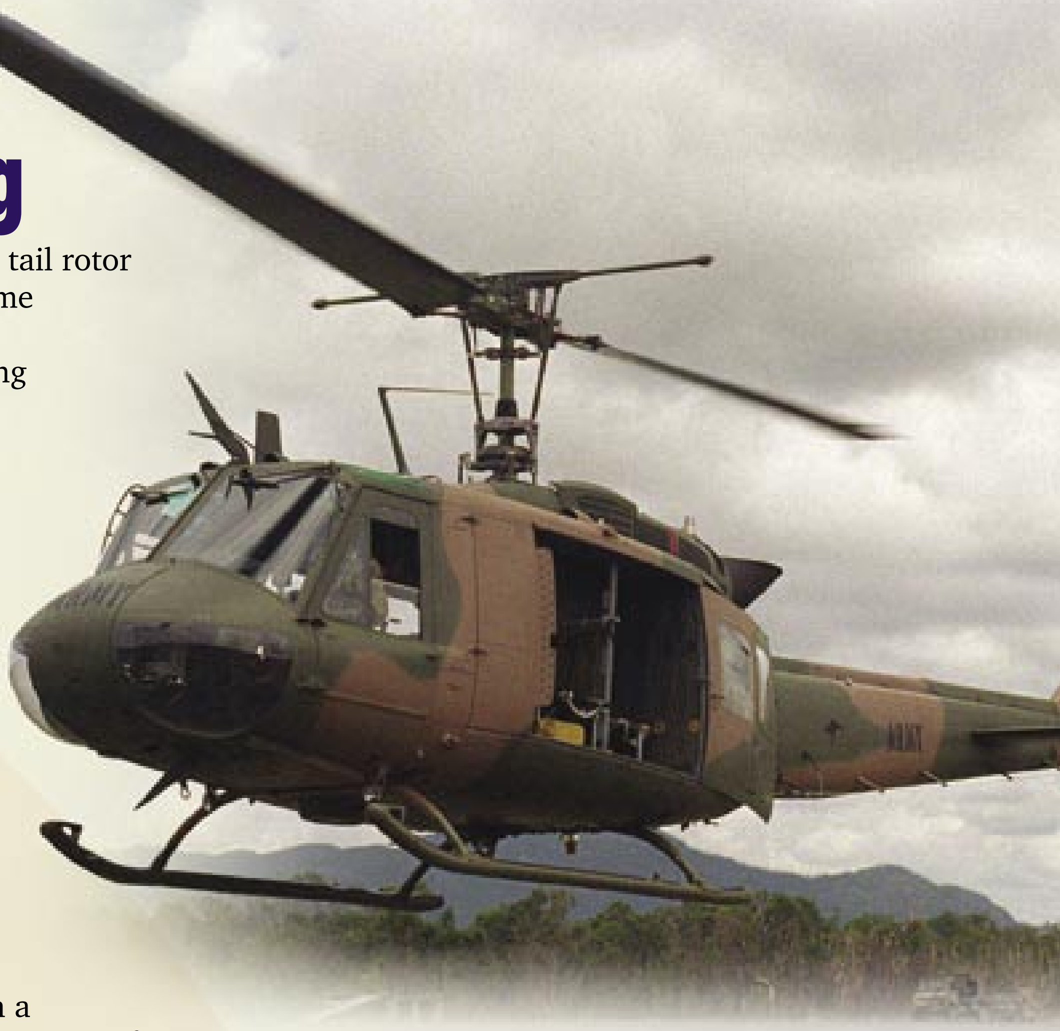
After what seemed like hours, the urgent tone of the Major's voice asking if I was all right penetrated the fog. With sudden clarity, I was able to interpret my aircraft instruments and see we were in a steep right turn, nose low, with airspeed and rate of descent increasing. Not knowing how long I'd been confused, I managed to level the aircraft and red-lined the TOT to stop the descent.

As the aircraft transitioned from descent to climb, we broke out into VMC and saw we were only about 200 feet AGL from hills, trees, and the biggest concrete communications tower I'd ever seen. Adjusting our flight path, I radioed the Tower, saying we were okay, in the clear, and changing frequency. For the remainder of the flight, the Major and I discussed the incident in detail.

Come to find out, he had received some flight instruction in instrument flying and had been taught the fundamentals of inadvertent IMC recovery. By cross-monitoring my performance and applying that little bit of training he'd had, he could see that I was in trouble. He spoke up in the nick of time, and I am grateful to be able to write about it today. ■

—CW4 Joel W. Buller, Commander, Detachment 3, Company A, 249th Aviation (TA), South Dakota Army National Guard, DSN 747-8368 (605-737-6368)

No Big Thing



It was no big thing, just a tail rotor drive shaft cover that came open and flew off the aircraft. Certainly nothing to compare with a Class A accident, or even a B or C. Those are the accidents that should get attention, right? True, but the failure to follow up that caused this mishap could also cause one of the big ones. We have to treat every Class D and E as a potential A-C, and so do you.

The crew chief had performed the daily inspection the previous day, but he was distracted with a maintenance problem on another aircraft and he failed to secure the fasteners on the tail rotor drive shaft covers between the 42-and 90-degree gearboxes.

The pilot who performed the preflight inspection noticed the covers weren't fastened, but he thought another crew chief might still be doing maintenance. He made a mental note, however, to check with the crew chief after he finished the preflight.

After finishing the preflight, the same pilot was taking a fuel sample when a fuel drain stuck in the open position. By the time he and the crew chief got the drain closed, they were both soaked with fuel. After washing and changing clothes, the pilot had forgotten about the unsecured drive shaft covers and he took off in the UH-1.

The aircraft was about 2,000 feet mean sea level (MSL), at 90 KIAS, when the pilot felt a thump. He decelerated and checked control responses. When normal cruise flight was resumed, the crew felt vertical vibration and the IP took the controls and headed for the nearest airport under reduced power. The aircraft made a shallow approach and landed with no further problems.

The IP hadn't been involved in preflighting the aircraft, but the crew chief and the pilot were aware the drive shaft covers weren't fastened—they just failed to follow up. The crew chief should have written up "drive shaft covers unfastened" in the logbook before going to work on the other aircraft. The pilot should have used the checklist during his preflight inspection and he should have found out why the drive shaft covers were unfastened, as soon as he discovered them, and made an entry in the logbook.

No big thing, only a lost drive shaft cowling, but next time the cowling might go through a rotor. Or it could be a drained gearbox that doesn't get written up. There just aren't any small things when it comes to safety. ■

—Reprint from Flightfax

NCO CORNER

Keep Our Soldiers Safe and Straight

The past several months have continued to be busy times for the Army, but despite this hectic pace I ask each of you to increase your focus on safety and standards. We cannot allow ourselves to be lax on either—soldiers' lives depend on both.

I am especially concerned about accidents so far this year. Our fatalities are up and more than 60 percent of accidental deaths involve either tactical or privately owned vehicles (POVs).

We have to ensure that our soldiers, civilian employees, and family members are wearing their seatbelts, helmets, road guard vests, and other safety equipment. These simple devices save lives only if they are used. They don't help anyone if they are tucked in a closet or not wrapped over a shoulder. Risk assessments, safety briefings, spot checks, and corrections are vital to keeping our troops alive.

On a recent trip, I left a battalion run to make a soldier—in uniform and in a government vehicle—put on his seatbelt. What was even more troubling was that there was an NCO in the passenger seat who was not enforcing standards.

This is not an anomaly; any of us could stand at an intersection at any post and spot dozens of soldiers driving by not buckled in. I need your help to ensure that first-line supervisors all the way up to post commanders continue to stress safety.

Our soldiers are our most valuable resource. We can't afford to lose them because we didn't try hard enough to ensure people put safety first. This starts with enforcing standards. As I have said before, we cannot lead from behind a desk. You can't mentor via E-mail. You have to be out front showing soldiers what "right looks like."

It's our job as NCOs to lead in every aspect. Soldiers deserve nothing less. We have outstanding leaders out there. Don't let complacency detract from those qualities. We must energize our efforts and not disregard mistakes. Deficiencies need to be corrected. Training needs to be realistic and hard. Soldiers need to be inspected. Height and weight standards must be met. Force protection must remain rigid.

I'm not talking about a revolutionary way of doing business. These are the basics. If we don't keep our soldiers safe and straight, lives will be lost. Soldiers will die in accidents that could have been prevented or because we were lax on standards. We cannot afford to pay that price. America has given us their brightest and best.

Lead. It's that simple. ■

—Adapted from SMA Jack L. Tilley's Message to MACOMs/Corps Leaders, 9 August 2002

POV

Gasoline and Static Electricity—A Bad Combination

Static electricity can make sparks fly—literally. Produce those sparks while pumping gas in your car, and both you and your car can go up in smoke and flames!

Researchers at the Petroleum Equipment Institute (PEI), as well as several other companies, are working on a campaign to try and make the public aware of fires as a result of static electricity at gas pumps. Out of an estimated 16 to 18 billion fuelings a year in the United States, most are safe non-events that pose no danger to consumers. However, PEI has documented more than 150 incidents of static electricity related fires at fuel pumps nationwide, with more than half occurring since 1999. Even though incidents related to static electricity at retail gasoline outlets are extremely unusual, all motorists should be aware of the potential that re-entering their car creates static electricity that could cause a fire.

A buildup of static electricity can be caused by re-entering a vehicle during refueling, particularly in cool and dry climate conditions. If customers return to their vehicle's fill pipe when refueling is complete, the static could discharge at the fill point and cause a brief flash fire with gasoline vapors. To greatly minimize the likelihood of any buildup of static electricity, motorists should not get back into their vehicles during refueling. Customers who cannot avoid re-entering their car should always touch a metal part of the vehicle away from the fill point, such as a door, before removing the nozzle.

The following tips will help to keep you and your family safe at the gas pump year-round:

- Keep gasoline away from ignition sources such as heat, sparks, and flames.
- Don't smoke around gasoline, either at the pump or at home.
- Shut off the vehicle's engine when refueling and disable or turn off any auxiliary sources of ignition (i.e., camper/trailer heaters, cooking units, or pilot lights).
- Only store gasoline in containers with approved labels, as required by federal or state authorities. Never store gasoline in glass or unapproved containers.
- Place portable containers on the ground during filling, and keep the nozzle in contact with the container to prevent buildup and discharge of static electricity. Never fill a container in or on a vehicle.
- Manually control the nozzle valve throughout the filling process. Fill a portable container slowly to decrease the chance of static electricity buildup and minimize spilling or splattering.
- Fill containers no more than 95% full to allow for expansion.
- Place cap tightly on the container after filling—do not use containers that do not seal properly.
- If gasoline spills on the container, make sure it has evaporated before you place the container in your vehicle.
- When transporting gasoline in a portable container, make sure it is secured to protect against tipping and sliding, and never leave it in direct sunlight or in the trunk of a car. ■

Adapted from PEI and American Petroleum Institute press releases. More information can be found at www.pei.org and www.api.org.

Accident Briefs

Information based on preliminary reports of aircraft accidents

AH-64

Class C

A model

■ No. 1 engine cowling was found to have been unsecured upon shutdown from flight and damage was identified.

Class E

■ While exiting refuel pad number two with CPG on the controls, aircraft struck a taxiway light while turning the corner to the right for refuel pad number one. Aircraft taxied to parking without further incident. No damage occurred to the aircraft.

■ While performing a confined area takeoff at 40 feet AGL, the engine out audio and light for No. 1 engine sounded. No. 2 engine TQ doubled to 117% before the PC reduced the collective and began an immediate descending right turn. All other engine indications were normal except for TQ on No. 1 remaining at 15% TQ. PC continued to fly the aircraft to a spot immediately behind the initial takeoff point. The aircraft landed in a large open dirt area without further incident.

Class A

D model

■ Aircraft crashed north of Camp. The aircrew was able to egress the aircraft with no serious injuries reported. Post-crash fire reportedly destroyed the aircraft. (Investigation continues.)

CH-47

Class A (Tentative)

D model

■ Tail section of aircraft contacted the ground during deceleration for fast-rope exfiltration. Damage to aft landing gear, ramp, aft main rotor system, and fuselage. (Investigation continues.)

Class B (Damage)

■ Five of six CH-47D aircraft moored at the Century Airpark sustained damage during unforecast heavy winds associated with thunderstorm activity. All aircraft were moored/tied down.

Class C

■ Left-side cockpit door separated during maintenance check flight. Door has not been located to date.

■ While conducting RL progression training under NVGs, aircraft was descending from an 80-foot hover to land in an unimproved LZ. At 10 feet, pilot asked the crew if the aircraft was clear and the response was yes. The non-rated crewmembers were at the two side doors/windows and the third was on the aft ramp. At 7 feet, the aircraft struck a training sling load (block) and damaged the underside of the aircraft just aft of the center cargo hook. Aircraft returned to home station without incident and the damage reported. ECOD: ~$24,000

MH-47

Class B (Damage)

D model

■ Aircraft main and aft right landing gear settled into unforeseen depression during landing to desert terrain in brownout conditions. Subsequent inspection revealed structural damage, as well as damage to the landing gear and the right side main fuel cell. Initial ECOD: $200-300K.

Class C

E model

■ During offload of an engineer vehicle to a sloped LZ, bucket of vehicle contacted the interior of the aircraft resulting in the following damage: damaged FADEC Control Unit No. 2, airframe stringers vicinity station 400, Nos. 6 and 7 hangar bearing and drive shaft. Aircraft flew to home station to conduct detailed post-flight inspection.

OH-58

Class A

A Model

■ While conducting a counter-drug mission, aircraft developed a vibration and made a landing. Crew inspected the aircraft and noted no damage. Crew spotted a fire in the adjacent valley and decided to depart the area. Following takeoff, the crew observed a downed power line. Aircraft was flown four miles to a sheriff station without incident and shut down. Post flight inspection revealed damage to main rotor system from a wire strike. Property damage to be determined. ECOD: $50,000 to aircraft; property TBD.

Class C

C Model

■ PI was on the controls performing a confined area approach when aircraft began to settle. PC took the controls in an attempt to arrest descent. Aircraft was overtorqued to 120% for 3-4 seconds. ECOD: $35-40K.

Class C

DI Model

■ While reboarding the aircraft following fireguard duties for refuel, the right-side pilot's left knee contacted the cyclic. Subsequent abrupt movement resulted in damage to all four of aircraft's main rotor blades (MRBs), the WSPS, and FM homing antennas. Initial ECOD: $155K.

Class C

DR Model

■ While performing manual throttle operations (FADEC) at altitude, the engine had an overspeed of 125%. The IP took control of the aircraft and performed an autorotation to an open field. Unknown damaged components. ECOD: Pending.

■ Run-up and hover checks were completed; crew was taxing to runway when aircraft experienced a FADEC failure and engine over speed. Crew landed the aircraft immediately. ECOD: ~$48,000.

TH-67

Class C

■ The 90-degree gearbox and vertical fin separated from the aircraft during simulated engine failure touch-down attempts (IERW training).

■ Aircraft experienced low rotor RPM during a standard autorotation procedure. Dynamic tailboom resonance, "spike knock," and "pylon whirl" conditions ensued, and the tail rotor assembly, 90° gearbox, vertical fin, and aft (2-ft) section of the tailboom separated from the aircraft. ECOD: Pending.

UH-60

Class E

A model

■ During a service flight, the intermediate transmission oil hot light illuminated. The flight was terminated at the local airport. The IGB chip detector was replaced. Further troubleshooting revealed a bent pin on the filter adapter.

Class B

L model

■ Aircraft MRBs struck a vehicle positioned on the airfield as it taxied by. Two soldiers seated in the rear/bed of the stationary AMV (LMTV) sustained injuries (cuts) from debris from the MRBs' contact with the canvas cover and support beams. Aircraft sustained damage to all four MRBs, two of which require replacement. Driver of the LMTV had temporarily exited the vehicle. Aircraft cleared the vehicle and a controlled shutdown was made.

Class C

■ Interval maintenance revealed damage to all four MRBs and the AN/ALQ-144. Aircraft had been flown the night prior. Suspect damage may have occurred during roll-on landing during dust conditions. No indications of MRB contact with the –144 were detected by the crew during flight; nor did postflight inspection reveal the damage.

RC-12

Class C

F model

■ Aircraft sustained lightning strike while in flight. Post-incident inspection revealed sufficient damage to ground the aircraft for repair.

C-26

Class C

■ Upon engine start-up and initiation of ground taxi from the passenger ramp, the courtesy red carpet was blown up into the propeller and subsequently struck the left side of the aircraft fuselage. Structural dent was deemed to have been "out of tolerance," requiring repair, and propeller and propeller gearbox both require replacement. ECOD: $68,241.

RC-7

Class C

B model

■ Aircraft sustained lightning strike during cruise flight. Aircraft was returned to home base and landed without further incident. Post-flight inspection revealed a hole in the "radome." ECOD: Pending.

Class E

■ During maintenance operational check (MOC) for a No. 2 engine and prop removal and installation, ground personnel discovered fuel leaking from the No. 2 engine wheel well on both sides of the nacelle. Aircraft was shut down and spill response was activated. Maintenance personnel found a loose fuel line connection.

RC-12

Class E

D model

■ During traffic pattern flight, on final, landing gear would not extend. Flight crew executed a go-around, departed the pattern and requested airspace for holding to conduct the required emergency procedure. The gear was manually lowered to the full down position. Landing was completed without further incident.

UC-35

Class C

■ Aircraft was at FL 430 on last leg of their mission. IP on board reported encountering some light to moderate turbulence. IP asked ATC if they were near any storms. ATC indicated they were south of any stormy weather. Upon landing, some nose diverter strips were found to be missing. Subsequent maintenance inspection revealed both COM antennas and four static wicks had positive indications of lightning strike. Crew reported no lightning in their vicinity. ECOD: Pending.

For more information on selected accident briefs, call DSN 558-9552 (334-255-9552). Note: Information published in this section is based on preliminary mishap reports submitted by units and is subject to change.

It takes more than tanks and guns and planes to win. It takes more than masses of men. It takes more than heroism, more than self-sacrifice, more than leadership. Modern war requires trained minds.

The days of unthinking masses of manpower are over. Individual intelligence, individual understanding, and individual initiative in all ranks will be powerful weapons in our ultimate success.

General Brehon Somervell, Public Addresses, 1941-1942